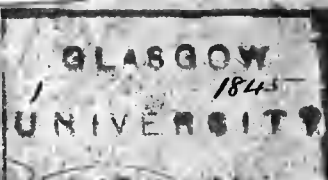


*John Ryan*

*In the University of Glasgow  
and possession of the  
with a paper*

*by J. Ryan M. A. &c.  
and candidate for the degree of M. A.  
of the University of Glasgow*

*1845*



*John Ryan* *and 1845*

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The liver is a secretory gland the largest in the human body. it fills the right hypochondrium extends through the epigastric region into the left hypochondrium as far as the cardiac orifice of the stomach sometimes as far as the spleen. It is situated below the diaphragm and above the right kidney the stomach and lesser omentum. It is held in this situation by several folds of peritoneum termed ligaments. The falciform divides right and left coronary. The liver is of an irregular form its longer diameter being transverse its posterior edge is thick and in contact with the diaphragm its anterior edge is thin and convex. Two notches may be observed in it one for the transmission of the common bile duct & another for the transmission of the portal vein.

vein, the other depression corresponds to  
the gall bladder. The Superior surface of the  
liver is smooth and convex and is divided  
by the suspensory ligament into a right and  
left portion and is in contact with the under  
surface of the diaphragm. The inferior surface  
is irregular marked by several projections  
and depressions, the former are called lobes  
and are five in number viz first the great or  
right lobe, second the left, third the Spigelian  
or Middle lobe this is situated behind the  
liver, numerous and transverse fissures it is  
connected to the right lobe of the liver by  
two roots. The lobulus caudatus or fourth  
lobe of the liver is also immediately behind  
the transverse fissure and abounds from the  
Spigelian along the right lobe between the

depressions marked by the colon and left  
 kidney. The lobulus quadratus or 5<sup>th</sup> lobe  
 is at the anterior part of the anterior part.  
 Right lobe in front of the transverse fissure  
 and behind the gall bladder and the  
 horizontal fissure. The depressions in  
 the superior surface of the liver are the fol-  
 -lowing. First the transverse fissure which is  
 situated between the lobulus quadratus and  
 caudatus. The vessels and nerves of the liver  
 enter the gland in this particular fissure.  
 Second the horizontal fissure extends from  
 the notch in the anterior edge of the liver, back  
 between the right and left lobes. the anterior  
 part of this fissure contains the obliterated  
 umbilical vein, the posterior part the obliterated  
 ductus venosus. Third the fissure for the

A  
Vena cava is between the lobulus *spigulii*  
and the right lobe, fourth the depression  
for the gall bladder fifth a depression for  
the right kidney and its capsule 6<sup>th</sup> a slight  
depression on the under surface of the left  
lobe corresponding to the anterior surface of  
the stomach. 8<sup>th</sup> a broad notch in the poste-  
rior edge of the liver, corresponding to the spine  
and right cross of the diaphragm. The Vena  
cava hepatica leave the liver in this situation

The liver has a peculiar brown colour inter-  
-spersed with yellow, in some subjects it is  
much darker than in others. In the young it  
is red and soft, and in the old it is green-  
-ly pale and yellow, often hard and brittle.  
The liver has two coats a serous  
and a fibrous. The serous or peritoneal

coat covers the whole surface of the liver except in those situations where the vessels are situated and between the lamina of the coronary ligament and in the depression in which the gall bladder is lodged, also when it is in close contact with the diaphragm behind. The second or fibrous coat of the gland is the immediate capsule it is little more than condensed cellular membrane. It is very distinct when the serous coat is deficient it adheres to the liver by innumerable processes which pass into its substance. It accompanies the three vessels which enter and leave the transverse fissure of the liver and ramifies thro' the substance of this organ.



Accompanying these Vessels, it surrounds  
them rather loosely so much so that when  
these Vessels are cut by a perpendicular  
incision through the substance of the Liver  
they will be found to collapse and bleed.  
This shade has got the name of Capsule of  
Glossow. The structure of the Liver consists  
of numerous granulations of a peculiar brown  
and yellow colour, connected together  
by branches of the Hepatic Artery, Veins  
and ducts, these grains are called the acini  
of the Liver by Malpighi in each of them a  
branch of the Hepatic Artery and Vena porta  
terminate and out of each proceed a  
branch of the Hepatic Veins and ducts -  
Through the substance of the Liver 4



7

sets of Vessels ramify in addition to  
Numerous lymphatics. Viz. The branches of  
the hepatic arteries Vena portarum. Hepatic  
ducts and Hepatic Veins. The Vena portarum  
are supposed by some to be the Vessels from  
which the bile is secreted. The hepatic ar-  
tery a branch of Celiac axis nourishes the  
Substance of the liver the hepatic ducts carry  
the bile from this organ and the Vena Cava  
hepatica return the blood which has  
circulated through the liver to the inferior  
Vena cava. Thus are generally three or four  
of these Veins and are seen escaping at  
the thick edge of the liver immediately  
behind the coronary ligament and joining  
as I said before the inferior Vena Cava. The  
three other Vessels may be seen in the layers

of the lesser omentum. The artery lying to the  
left side the duct to the right and vein pos-  
terior and between both. This vein is formed  
by the confluence of the Splenic and Mesenteric  
Veins. There are two hepatic ducts named  
the right and left, which on escaping  
the transverse fissure of the liver unite and  
form one duct or may be termed the proper  
hepatic duct. This descends for about an  
inch or two on the right side of the lesser  
omentum, when it is generally joined by  
the Cystic duct of the gall bladder. The  
union of both these ducts have got  
the name of Ductus Communis choled-  
=cus. This duct is about three inches in  
length descends behind the pylorus &  
the upper part of the duodenum about

The Middle of the internal or concave side of the Middle division of this gut the duct perforates the coats of this intestine in an oblique direction as this duct is about perforating the duodenum it is frequently joined by the duct from the pancreas.

The gall bladder being in such close contact with the liver and in fact might be considered a portion of it. I may therefore make a few remarks on its situation appearance and structure. It is situated in a depression on the inferior surface of the right lobe of the liver. It is of a pyriform figure, the large extremity being directed downwards and a little

forwards. projecting sometimes against  
the parietes of the abdomen. The neck of  
the gall bladder is directed upwards incli-  
-ning backwards and inwards. And ends in  
what is termed the cystic duct. The  
gall bladder is closely united to the liver  
by peritoneum. Cellular Membrane and  
small blood vessels. It may be con-  
-sidered to consist of three tun. N. Viz  
1<sup>st</sup> the external or serous which is only  
a partial coat 2<sup>nd</sup> The Cellular 3<sup>d</sup> It  
is lined by a Mucous Membrane. The gall  
bladder serves as a reservoir for the bile  
when it is not required in the intestinal  
canal.

Having thus considered the anatomy

And structure of the liver and gall  
 bladder. I may now make a few remarks  
 on the physiology of the liver. Much has  
 been said from time to time respecting this.  
 But at present the opinions of Mr. Keenan  
 is generally adduced. Any information  
 that can be added this important subject  
 adds in no small degree towards Medical  
 literature. Some consider that the extreme  
 subdivisions of the hepatic artery all  
 terminate in veins that run into the branches  
 of the Ven. porta, this vein then cannot be  
 considered to arise solely from the other  
 abdominal Veins. Also the hepatic  
 artery as far as can be traced has no  
 termination in either biliary ducts

or hepatic Veins and Most Physiologists  
Conceive that it is destined for Nutrition  
and not for the secretion of bile. The  
Subdivision of the Vena porta all terminate  
in or become the hepatic Veins. That the  
Minutest biliferous ducts. The subdivisions  
of the Vena porta and hepatic Veins  
are conglomerated into Minut Masses or  
lobules. These are surrounded except  
at their base with a prolongation of  
Glisson's capsule and are supplied  
with Minut Arteries and probably with  
Nerves and absorbents. That the branches  
of the Vena porta after running between  
the lobules and covering them (except at  
their bases) and freely anastomosing

Around them so as to form a continuous  
 plates throughout the whole liver. And  
 enter the lobules, most minutely subdivided  
 and become hepatic Venuis. Which unite  
 into one large Vessel in each process  
 of every lobule and again these Vessels unite  
 into one larger which passes down the  
 centre of the lobule and goes out at the  
 base. The Venuis thus formed run between  
 the bases of the lobules and anastomose  
 and are called sublobular. The minutest  
 diliporous tubes form a reticulated plate  
 -us in each lobule and unite into branches  
 which leave it. These I will call lobular  
 biliary plates. They have much the  
 appearance of cells. These are what



Malpighi and others have termed  
 Acini of the Liver. In these Acini we can  
 perceive the bile which flows slowly  
 but constantly along the hepatic duct.  
 The greater portion Unites along the ductus  
 Communis Cholecysticus into the <sup>in</sup> ~~Acini~~ <sup>duct</sup>  
 but some passes from the hepatic into  
 the cystic duct and receives <sup>by</sup> ~~into~~ the  
 gall bladder, where it remains for a  
 short or longer period and receives then  
 the mucus of the cystic bile. This has great  
 Analogy to the hepatic, but becomes more  
 concentrated Viscid and bitter, by stagnation  
 in the gall bladder. The cause of which is  
 in all probability owing to the absorption of  
 its more watery parts by the lymphatic  
 Vessels. Many Animals have no gall bladder  
 such as the Horse and goat & Currier

thinks that it is intended as a reservoir  
 of bile when the animal is subject to long  
 fasting from the uncertain supply of food.  
 The gall bladder is sometimes absent  
 in the human subject. It has been dispute  
 -ed whether the bile is produced from  
 Arterial or Venous blood. The former opi  
 -nion is counteranced by the analogy  
 of the other secretions which depend  
 upon Arterial blood. Nevertheless More  
 accurate investigations prove that the  
 greater part if not the whole of the  
 biliary secretion is Venous. Our attention  
 must now be turned to the bile itself,  
 respecting the Nature and use of which  
 there has been much more controversy

than about any other fluid. Bil. taken  
 from a fresh adult Subject is rather  
 Viscid of a brownish green Colour in-  
 -odorous And if Compared, with that  
 of hautes, scarcely better. Berghius states  
 that the bil. contains alkali and salts  
 in the same proportion as the blood  
 and that it contains No Ureia. but a  
 peculiar Matter of a bitter and <sup>acid</sup> afterwa  
 somewhat smart taste, which possesses  
 characters in common with fibrin, the  
 colouring Matter and the albumen of the  
 blood. This forms with an excess of a  
 perfectly Unions ~~Excess~~ precipitate what  
 was considered albumen in the bil. Berghius  
 regarded as the Urine of the gall bladder

Bile contained according to him

Water	917.4
Biliary Matter	80.0
Mucus of the gall bladder	3.0
Alkalies and Salts	9.6
	<hr/> 1000.0

Having thus considered the Anatomy and Physiology of this important organ I can with greater facility, recount the description of the particular disease called Hepatitis - We might have been led to imagine that the liver is not so seriously exposed to disease as other parts in the abdominal cavity. The alimentary canal is at any rate especially exposed to the various conditions of the food which passes through it and the character

18  
of its secretions is sometimes found  
Acrid and irritating. And this often  
times leads to mischief. The liver is found  
to be affected not only by Modifications  
of its secretion but likewise by external Causes  
= and through the Medium of the Cir-  
= culation All Kinds of Matter however in-  
= troduced into the Circulatory Current  
have to pass through the Vena porta &  
through the liver and this exercises a  
direct effect upon this Viscer. for instance  
Spiritus liquors are liable to disorder  
the functions of this organ and also  
any other class of irritating and poison-  
= ous substances. The chief external influen-  
= ces which affect the liver are cold and  
Heat it <sup>is</sup> well known that in warm climates

19

Disease of this organ is peculiarly  
apt to suffer and its functions to be  
disordered, there might be several other  
reasons assigned to the liver becoming  
affected. But considering that these  
are sufficient I hasten to the more  
particular part of the procedure, The  
disease which I wish to consider under  
the head of inflammatory affections of  
the liver, will be Hepatitis of the Acute  
form. This disease is described as a  
very distinct one attended with symptoms  
of inflammation and disorder of the  
functions of the liver, But I have found  
at least in the Country that I belong  
to, that this affection is more obscure  
than it is commonly supposed to be.

And far less distinct in its character.  
 The symptoms are commonly those of  
 pain in the right Hypochondrium extending  
 to the back and sometimes to the Shoulder  
 and generally very acute, permanent,  
 and increased on pressure, a white  
 and dry tongue, morbid respiration  
 cough and difficulty of lying on the  
 left side, patient generally prefers lying  
 on the back. Bowels sometimes constipated  
 at other times diarrhoea is present. The  
 enlargement in the right hypochondriac  
 region is a very diagnostic mark. Usually  
 the enlargement extends downwards  
 across to the umbilicus. It is frequently  
 found from 2 to 4 inches below the margin



of the ribs. If there be a displacement  
 or enlargement of the liver upwards, it  
 pushes the diaphragm along with it  
 causing a considerable amount of  
 dulness in the right side of the chest.  
 Not even this but other signs of disor-  
 =der in the respiratory functions, a  
 case of which came under my notice  
 in the summer of 1844. The dulness will  
 be sometimes perfect as high as the fourth  
 rib. in the back though less in degree  
 the sound reaches to the angle of the  
 scapula and occasionally passes into  
 the axilla. There is a <sup>plentitudo</sup> sound of dulness  
 in those parts on which the diagnosis  
 of enlarged liver depends. This particular

disease is to be diagnosed from effu-  
 sion into the pleura and pulmonary  
 consolidation: either of which may  
 greatly simulate it. In this essay  
 it does not come within my province  
 to point out the distinguishing marks  
 that exists between each. The enlargement  
 then takes place downwards or upwards  
 it also takes place outwards, this assists  
 materially in the diagnosis. It is a very  
 marked sign. when there is fulness in  
 one portion of the chest that does not  
 correspond with the opposite side  
 especially when such fulness is atten-  
 ded by dullness in the region of the  
 liver and also a bulging out of the ribs

Enlargement alone does not constitute  
 a criterion of hepatitis. Enlargement  
 with dulness may exist in congestions  
 and in various structural diseases  
 and we must look therefore to the presence  
 of fever heat of the skin and state  
 of the pulse. There are other symptoms  
 which occasionally attend hepatitis  
 such as nausea vomiting and occasional  
 jaundice. Termination of the disease.  
 The tendency of the disease in the acute  
 form is either to terminate by resolution  
 by suppuration, or to pass into the Chronic  
 state. The symptoms of the former are  
 subsidence of the pain, the heat and the  
 fever and lastly the disappearance of the

Swelling. The symptoms of suppuration  
 occurring are chiefly subsidence of the  
 heat and pain, but no subsidence of  
 the swelling, and only a partial sub-  
 =sidence of the pain. There are frequent  
 rigors as in other cases of suppuration.  
 The skin exhibits a pallidity sometimes  
 accompanied with a hectic flush on  
 the face, abscess next forms, frequently  
 many of them. The abscesses may open  
 in various directions, such as into  
 the intestinal tube, sometimes into the  
 duodenum, sometimes into the gall  
 bladder or even pass through the diaphragm  
 into the pleura, sometimes into the peritoneum  
 but rarely opens externally.

The treatment of this disease, whether it occurs in the substance of the liver or in the peritoneal covering is to be conducted on the same general principle.

The Measures of most importance are strictly antiphlogistic, Venesection in the early stage of the disease, or cupping to the side to a large amount which in some cases answers very well, by drawing away the blood from the immediate neighbourhood of the part, which must be done till free decubases, as wide as the pain in the region of the liver, the tenderness and the swelling, pumping is a very beneficial remedy especially Calomel & purgation followed by Saline. Cupping may be <sup>repeated</sup> several times, Mercury is a remedy of

great Value, but it is questionable whether  
it is so useful in the acute as in the more  
chronic form of hepatitis. It is frequently  
combined with Tartaric & Antimony & Acid  
Sulphuric powder. It is necessary to main-  
tain the free action of the bowels and to  
give occasional doses of Calomel after  
attacks of acute hepatitis as the inflamma-  
tion is apt to remain in a lower degree  
and to go on to the Chronic form, or to pass  
into structural disease. Therefore Mild  
Mercurial doses should be continued  
Purging is frequently used with  
considerable benefit especially after the  
application of Cupping & leeches.  
Various other remedies might be mentioned But  
considering the present complaint for the present  
reasons. I try to conclude